

CLAIMS

1. A conjugate which comprises fine porous particles on which functional substance is adhered or not adhered, and, immobilized on the surface of the particles, polymer molecule based on water-soluble high molecular chain segment.
2. A conjugate of claim 1 wherein the polymer molecule has, as a water-soluble high molecular chain, a chain originated in a polymer selected from the group consisting of polyethylene glycol, polyvinyl pyrrolidone, polyvinyl alcohol, polyacrylamide and polymethacrylamide, and wherein the polymer molecule also has functional group or functional part to form covalent bond or a bond via physical interaction by which to immobilize said polymer molecule itself onto the surface of fine porous particles.
3. A conjugate of claim 1 wherein the polymer molecule has formula (I) as follows:



wherein R^1 denotes hydrogen atom, methyl, formyl which may be protected, amino which may be protected, carboxy which may be protected, hydroxyl which may be protected or vinylsulfonyl group;

L_1 and L_2 independently denote valence bond or linker;

X denotes functional group or functional part to form covalent bond or a bond via physical interaction by which to immobilize said polymer molecule onto the surface of fine porous particles; and

n denotes an integer of 2 to 20,000.

4. A conjugate of claim 3 wherein X is selected from the group consisting of mercapto group, silanol group, carboxyl group and amino group, or from the group consisting of main chain portion of oligomer or polymer which has, on side chain, mono- or di-lower

alkyl-substituted amino group; main chain portion of oligomer or polymer which has, on side chain, mercapto group; main chain portion of oligomer or polymer which has, on side chain, silanol group; main chain portion of oligomer or polymer which has, on side chain, carboxyl group; main chain portion of oligomer or polymer which has, on side chain, sulfo group; main chain portion of oligomer or polymer which has, on side chain, phosphate group; and main chain portion of oligomer or polymer which has, on side chain, hydroxyl group.

5. A conjugate of claim 1 wherein the fine porous particles are organic or inorganic particles which have an average particle size of 10 nm to 10 mm, and have pores of a diameter of 10 μm to 1 nm (10 Å).
6. A conjugate of claim 5 wherein the fine porous particles are selected from the group consisting of crosslinked polystyrene, agarose, Sephadex, sintered continuous porous polyethylene and sintered continuous porous polypropylene.
7. A conjugate of claim 5 wherein the fine porous particles are selected from the group consisting of silica, clay, zeolite, titania, alumina and zirconia.
8. A conjugate of claim 1 wherein no functional substance is adsorbed on the fine porous particles.
9. A conjugate of claim 1 wherein the fine porous particles has functional substance adsorbed thereon.
10. A conjugate of claim 1 wherein the functional substance is adsorbed on the fine porous particles, and is selected from the group consisting of dye, fluorescent or luminescent substance, magnetic body, physiologically active substance, antimicrobial agent, food

additive, perfume and raw material for cosmetics.

11. A composition for slowly releasing a physiologically active substance which composition comprises, as effective ingredient, a conjugate of claim 1 wherein a functional substance is adsorbed on fine porous particles, said functional substance being a physiologically active substance.

12. A composition for slowly releasing a perfume which composition comprises, as effective ingredient, a conjugate of claim 1 wherein a functional substance is adsorbed on fine porous particles, said functional substance being a perfume.

13. A composition for slowly releasing an antimicrobial agent which composition comprises, as effective ingredient, a conjugate of claim 1 wherein a functional substance is adsorbed on fine porous particles, said functional substance being an antimicrobial agent.

14. A composition for slowly releasing a raw material for cosmetics which composition comprises, as effective ingredient, a conjugate of claim 1 wherein a functional substance is adsorbed on fine porous particles, said functional substance being a raw material for cosmetics.

15. A composition for adsorbing and removing harmful substance which exists in aqueous solution, which composition comprises, as an effective ingredient, a conjugate of claim 1 which contains no functional substance.

16. A composition of claim 15 wherein the harmful substance is cholesterol or neutral fat, and wherein said conjugate is administered into living body.

17. A method for controlling microorganisms in an environment

wherein microorganisms grow, which method comprises placing in said environment a conjugate of claim 1 wherein a functional substance is adsorbed on fine porous particles, said functional substance being an antimicrobial agent.

18. A method of makeup which comprises applying a cosmetic to a site of skin which needs raw material for the cosmetic, said cosmetic containing a conjugate of claim 1 wherein a functional substance is adsorbed on fine porous particles, and said functional substance being a raw material for cosmetics.